

## CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

1. A method determining a listing of host processors on a network to perform a parallel application, comprising:

determining a listing of all possible hosts on said network for performing said parallel application;

determining for each of said possible host a current capacity and a current utilization;

calculating for each of said possible host a difference between said current capacity and said current utilization; and

selecting from said listing of all possible hosts a listing of hosts based on sorting said calculated differences.

2. The method of claim 1, wherein said determination of a listing of processors is itself a parallel processing application.

3. The method of claim 1, wherein said determination of a listing of processors is executed in real time concurrently with said parallel application.

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4. The method of claim 1, further comprising:

providing said selected listing of hosts to an operating system controlling an execution of said parallel application.

5. The method of claim 1, wherein said selecting a listing of hosts from said listing of all possible hosts further comprises a quantification of a history of each said possible host and a consideration of said history in said selecting of a listing.

6. The method of claim 1, wherein said calculating a difference between current capacity and a current utilization further comprises:

normalizing said difference.

7. A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to determine a listing of host processors on a network to perform a parallel application, said machine-readable instructions comprising:

determining a listing of all possible hosts on said network for performing said parallel application;

determining for each of said possible host a current capacity and a current utilization;

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calculating for each of said possible host a difference between said current capacity and said current utilization; and

selecting from said listing of all possible hosts a listing of hosts based on sorting said calculated differences.

8. The signal-bearing medium of claim 7, wherein said machine-readable instructions are provided to an operating system on said network such that said determination of a listing of processors is itself a parallel processing application.

9. The signal-bearing medium of claim 7, wherein said machine-readable instructions are provided to an operating system on said network such that said determination of a listing of processors is executed in real time concurrently with said parallel application.

10. The signal-bearing medium of claim 7, said machine-readable instructions further comprising:

providing said selected listing of hosts to an operating system controlling an execution of said parallel application.

11. The signal-bearing medium of claim 7, wherein said selecting a listing of hosts from said listing of all possible hosts further comprises a quantification of a history

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of each said possible host and a consideration of said history in said selecting of a listing.

12. The signal-bearing medium of claim 7, wherein said calculating a difference between current capacity and a current utilization further comprises:

normalizing said difference.

13. A computer network having a plurality of computation resources and an operating system for executing a target parallel application process using at least a subset of said plurality of computation resources, wherein said network includes a method to determine a listing of said computation resources to perform said target parallel application process, said method comprising:

determining a listing of all possible said computation resources on said network for performing said parallel application;

determining for each of said possible computation resource a current capacity and a current utilization;

calculating for each of said possible computation resource a difference between said current capacity and said current utilization; and

selecting from said listing of all possible computation resources a listing of computation resources based on sorting said calculated differences.

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14. The computer network of claim 13, wherein said method interfaces to an operating system on said network such that said determination of a listing of computation resources is itself a parallel processing application.

15. The computer network of claim 13, wherein said method interfaces to an operating system on said network such that said determination of a listing of computation resources is executed in real time concurrently with said parallel application.

16. The computer network of claim 13, said method further comprising:  
providing said selected listing of computation resources to an operating system controlling an execution of said parallel application.

17. The computer network of claim 13, wherein said selecting a listing of computation resources from said listing of all possible computation resources further comprises a quantification of a history of each said possible computation resource and a consideration of said history in said selecting of a listing.

18. The computer network of claim 13, wherein said calculating a difference between current capacity and a current utilization further comprises:  
normalizing said difference.

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19. A computer network having a plurality of computation resources and an operating system for executing a target parallel application process using at least a subset of said plurality of computation resources, wherein said network includes a method to determine a listing of said computation resources to perform said target parallel application process, said method comprising:

means for determining a listing of all possible said computation resources on said network for performing said parallel application;

means for determining for each of said possible computation resource a current capacity and a current utilization;

means for calculating for each of said possible computation resource a difference between said current capacity and said current utilization; and

means for selecting from said listing of all possible computation resources a listing of computation resources based on sorting said calculated differences.

20. The computer network of claim 19, wherein said method interfaces to an operating system on said network such that said determination of a listing of computation resources is executed in real time concurrently with said parallel application.